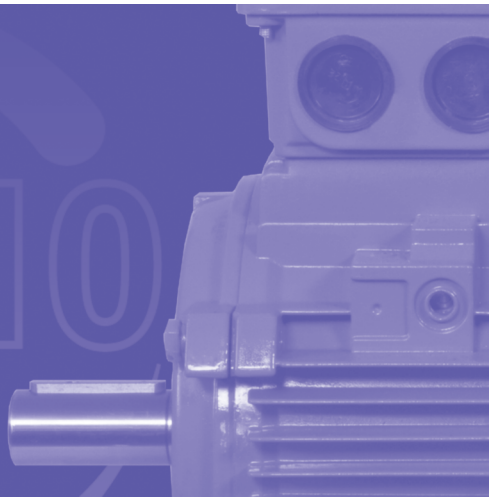
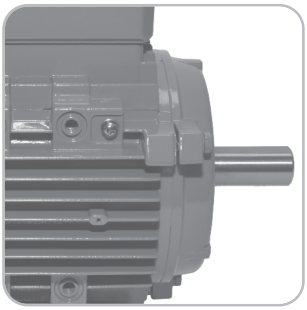
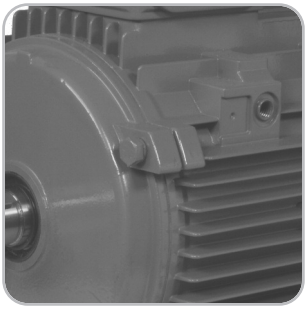
Series 10
IE3 efficiency



Frames 80 to 355





BROOK CROMPTON
Keeping Industry Turning

20151E issue 1.0

Introduction

2

Specification

Specification	Standard product	Option
Frame material	80 - 160 aluminium	-
	80 - 355 cast iron	-
Enclosure	IP55	IP56, IP65
Mounting option	Foot (B3), Flange (B5), Face (B14)	-
	Foot & Flange (B35), Foot & Face (B34)	-
Terminal box position	Top	-
Voltage	3 kW and below: 230 / 400	-
	4 kW and above: 400 / 690	-
Frequency	50 Hz	60 Hz
Cooling	IC411	-
Bearing location	Aluminium (80 - 160): non drive end	-
	Cast iron (80 - 355): drive end	-
Lubrication	80 - 225: double-shielded bearings	-
	250 - 355: through greasing	-
Insulation	class F	-
Temperature rise	class B	-
Paint colour	water blue (RAL 5021)	-
Heaters	Aluminium (80 - 160): -	110 - 115 volts or 220 - 240 volts
	Cast iron (80 - 355): 220 - 240 volts	110 - 115 volts
Thermal protection - IE3	Aluminium (80 -160): Thermistors	-
	Cast iron (80 - 355): Thermistors	-
Inverter Duty (with derate)	Variable Torque: 10:1	-
	Constant Torque: 2:1	-
Ambient temperature	-30°C to + 40°C	-

The above specification and options give a brief summary of features available for the Series 10 IE3 range.
For a full listing of optional features, please contact Brook Crompton sales.

Brook Crompton
Keeping Industry Turning

Brook Crompton, the original innovator in electric motor development, is a leading provider of energy efficient electric motors. With over 110 years' technical & design expertise, UK-based Brook Crompton delivers consistently reliable electric motors to a global market.

Trusted to power limitless industrial activities across diverse market sectors, the robust design of Brook Crompton's electric motors drives fans, pumps, compressors, conveyors and more, every second, of every day, of every year.

Driven by technology and innovation,
Brook Crompton has one of the widest available ranges of electric motors for operation in hazardous atmospheres and hostile environments.

Renowned for their adaptability, Brook Crompton's extensive motor stock can be modified to suit the needs of different market sectors, with technical support from the company's knowledgeable team readily available to ensure the correct selection of motors for any application. For bespoke situations and complete flexibility, Brook Crompton will design and manufacture to meet individual customer specifications.

Brook Crompton has a long-standing reputation for efficient customer service, supporting customers worldwide through its global network. Specialist Brook Crompton Motor Centres operate alongside approved product distributors throughout the UK, mainland Europe, Middle East, Canada, USA, and Asia Pacific.

Shaping the future of electric motors, Brook Crompton is focused on the development of new products that improve energy efficiency, offer lower cost of ownership throughout the motor lifetime and reduce environmental impact.

Brook Crompton, the original innovator in electric motors.

Quality assurance

Stringent quality procedures are observed from first design to finished product in accordance with the ISO9001 documented quality systems.

All factories have been assessed to meet these requirements.

Series 10 IE3

The Brook Crompton Series 10 range is a high quality standard range of electric motors with a specification suitable for most industrial applications.
It covers outputs from 0.75kW up to 375kW in frame sizes 80 to 355.

Benefits include:

- Full output range to meet your requirements
- Efficiencies comply with EN60034-30 (IE3)
- Robust construction for long life
- Mountings: foot, flange, face or combination
- Multi-mount - aluminium range
- Integral feet cast iron - 80 to 355 frame.
- Euro voltage: up to 3kW 230/400V; 4kW and above 400/690V
- Dual frequency (50 / 60Hz)
- IP55
- Metal fan cover
- Metric entries
- Thermal protection fitted as standard
- Inverter duty

Standards and environment

Standards

Standards	
Series 10 motors are manufactured to the international standards listed below:	
Performance	IEC 60034-1
Dimensions	IEC 60072-1
Mounting	IEC 60034-7
Enclosure protection	IEC 60034-5
Vibration	IEC 60034-14 (grade A)
Noise	IEC60034-9

Environment Enclosure

All motors have degrees of IP protection as defined in IEC EN 60034-5. The normal arrangement is IP55.
See Specification (page 2) for alternatives.

Motor cooling

Motors are cooled in accordance with IEC 60034-6.
The normal arrangement is IC411 (Totally Enclosed Fan Ventilated) via a fan mounted at the non-drive end.

European directives

The following European directives apply:

Directives

Compliance with European directives applying to AC induction motors

Directives	Low voltage (LV)	Machinery (MD)	Electromagnetic compatibility (EMC)	Energy related products (ErP)
Reference numbers	2006/95/EC	2006/42/EC	2004/108/EC	2009/125/EC
	93/68/EEC	98/79/EC	93/68/EEC	2005/32/EC
	73/23/EEC	98/37/EC	92/31/EEC	2000/55/EC
		93/44/EEC	89/336/EEC	96/57/EC
		89/392/EEC		92/42/EEC
Motor CE marked	Yes	No	No	Yes
Standards	EN 60034	Not applicable	EN 60034-1	EN 60034-30
Documentation for customers' technical file	Declaration of conformity	Certificate of incorporation	Statement[1]	Declaration of conformity
Safety instructions with every motor	Yes	Yes	Yes	-
Comment	Relevant electrical equipment operating between 50 to 1000 volts AC	Statement[2]	Component	Minimum efficiency levels for motor outputs 0.75 - 375 kW 2-6 pole

[1] Motors operating from a correctly applied, sinusoidal (AC) supply meet the requirements of the EMC directive and are within the limits specified in standard EN 60034-1

[2] When installed in accordance with our customer safety and installation and maintenance instructions, they can be put into service only when the machinery into which they are being incorporated, has been declared to be in conformity with the machinery directive in accordance with Article 4(2) and Annex IIB of that Directive (98/37/EEC)

Minimum Energy Performance Standard

The EU MEPS scheme sets **mandatory** minimum efficiency levels for most single speed 3ph induction motors up to 375 kW rated up to 1000V.

Commission Regulation (EC) No. 640/2009 & amendment 4/2015 covers 2, 4 & 6 pole single speed 3ph induction motors from 0.75 to 375kW, rated up to 1000V based on continuous duty operation. Aiming to reduce energy consumption throughout Europe and the rest of the world, it comes into effect in stages.

The effect of this is to maximise potential savings in electric motor driven systems.
Base of the regulation is an international IEC 60034-30 standard. It defines the following efficiency classes :
IE2 - High Efficiency
IE3 - Premium Efficiency

Efficiency levels in Europe (Time Line)
Mandatory from:
From 1st January 2015:
Minimum efficiency requirement at IE3 level for 7.5 - 375kW motors or IE2 level for motors equipped with an appropriate variable speed drive.
From 1st January 2017:
Minimum efficiency requirement at IE3 level for 0.75 - 375kW motors or IE2 level for motors equipped with an appropriate variable speed drive.

Performance data

4

3000 min^{-1} (2 pole), aluminium construction

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia WK^2	Mean Sound pressure level @ 1m on no load	Weight
P_N				I_N												
kW	hp	n min^{-1}	Type	230 V A	400 V A	690 V A	η 1.0 P_N	Cos Ø 1.0 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75	1.0	2865	**P-DA80MA**	2.85	1.64	-	80.7	0.82	2.50	2.3	1.5	2.3	6.8	0.00110	52	10.5
1.1	1.5	2885	**P-DA80MB**	4.02	2.31	-	82.7	0.83	3.64	2.2	1.5	2.3	7.3	0.00130	53	12.5
1.5	2.0	2885	**P-DA90SA**	5.32	3.06	-	84.2	0.84	4.97	2.2	1.5	2.3	7.6	0.00187	55	16.0
2.2	3.0	2895	**P-DA90LA**	7.56	4.35	-	85.9	0.85	7.26	2.2	1.4	2.3	7.8	0.00223	55	18.0
3.0	4.0	2915	**P-DA100LA**	9.94	5.71	-	87.1	0.87	9.83	2.2	1.4	2.3	8.1	0.00432	55	26.0
4.0	5.5	2895	**P-DA112MA**	-	7.45	4.32	88.1	0.88	13.2	2.2	1.4	2.3	8.3	0.00880	55	35.0
5.5	7.5	2925	**P-DA132SA**	-	10.1	5.86	89.2	0.88	18.0	2.0	1.2	2.3	8.0	0.01685	56	55.0
7.5	10	2925	**P-DA132SB**	-	13.7	7.92	90.1	0.88	24.5	2.0	1.2	2.3	7.8	0.02285	56	62.0
11.0	15	2930	**P-DA160MA**	-	19.6	11.3	91.2	0.89	35.9	2.0	1.2	2.3	7.9	0.06268	63	86.0
15.0	20	2930	**P-DA160MB**	-	26.5	15.3	91.9	0.89	48.9	2.0	1.2	2.3	8.0	0.0658	63	94.0
18.5	25	2930	**P-DA160LA**	-	32.5	18.8	92.4	0.89	60.3	2.0	1.1	2.3	8.1	0.0968	65	117

P-DA frame nomenclature indicates an IE3 efficiency motor

See performance data notes on page 7

Performance data

1500 min^{-1} (4 pole), aluminium construction

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia WK^2	Mean Sound pressure level @ 1m on no load	Weight
P_N				I_N												
kW	hp	n min^{-1}	Type	230 V A	400 V A	690 V A	η 1.0 P_N	Cos Ø 1.0 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm^2	$\frac{L_{PA}}{dB(A)}$	kg
0.75	1.0	1425	P-DA80MB	3.04	1.75	-	82.5	0.75	5.0	2.3	1.6	2.3	6.5	0.00165	41	14.0
1.1	1.5	1420	P-DA90SA	4.32	2.48	-	84.1	0.76	7.4	2.3	1.6	2.3	6.6	0.00241	41	16.0
1.5	2.0	1420	P-DA90LA	5.73	3.30	-	85.3	0.77	10.1	2.3	1.6	2.3	6.9	0.00312	41	19.0
2.2	3.0	1450	P-DA100LA	7.86	4.52	-	86.7	0.81	14.4	2.3	1.5	2.3	7.5	0.00779	41	26.5
3.0	4.0	1450	P-DA100LB	10.5	6.02	-	87.7	0.82	19.8	2.3	1.5	2.3	7.6	0.00872	41	30.5
4.0	5.5	1450	P-DA112MA	-	7.95	4.61	88.6	0.82	26.4	2.2	1.5	2.3	7.7	0.01215	42	36.0
5.5	7.5	1445	P-DA132SA	-	10.7	6.19	89.6	0.83	36.3	2.0	1.4	2.3	7.5	0.03835	48	60.0
7.5	10	1460	P-DA132MA	-	14.3	8.26	90.4	0.84	49.1	2.0	1.4	2.3	7.4	0.04865	50	63.0
11.0	15	1455	P-DA160MA	-	20.4	11.8	91.4	0.85	72.2	2.2	1.4	2.3	7.5	0.1095	52	90.0
15.0	20	1455	P-DA160LA	-	27.3	15.8	92.1	0.86	98.5	2.2	1.4	2.3	7.5	0.1138	52	113

P-DA frame nomenclature indicates an IE3 efficiency motor

See performance data notes on page 7

Performance data

6

1000 min^{-1} (6 pole), aluminium construction

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia WK^2	Mean Sound pressure level @ 1m on no load	Weight
P_N				I_N												
kW	hp	n min^{-1}	Type	230 V A	400 V A	690 V A	η 1.0 P_N	Cos Ø 1.0 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75	1.0	935	**P-DA90SA**	3.36	1.93	-	78.9	0.71	7.66	2.0	1.5	2.1	5.8	0.00332	44	21.0
1.1	1.5	935	**P-DA90LA**	4.67	2.69	-	81.0	0.73	11.2	2.0	1.3	2.1	5.9	0.00445	44	26.0
1.5	2.0	950	**P-DA100LA**	6.25	3.60	-	82.5	0.73	15.1	2.0	1.3	2.1	6.0	0.00924	44	31.5
2.2	3.0	940	**P-DA112MA**	8.85	5.09	-	84.3	0.74	22.4	2.0	1.3	2.1	6.0	0.01436	45	37.0
3.0	4.0	960	**P-DA132SA**	11.9	6.84	-	85.6	0.74	29.8	2.0	1.3	2.1	6.2	0.03827	46	47.0
4.0	5.5	960	**P-DA132MA**	-	8.99	5.21	86.8	0.74	39.8	2.0	1.3	2.1	6.8	0.04892	46	57.0
5.5	7.5	960	**P-DA132MB**	-	12.0	6.97	88.0	0.75	54.7	2.0	1.3	2.1	7.1	0.05847	46	63.0
7.5	10	970	**P-DA160MA**	-	15.4	8.92	89.1	0.79	73.8	2.0	1.3	2.1	6.7	0.1306	53	85.0
11.0	15	970	**P-DA160LA**	-	22.0	12.7	90.3	0.80	108.3	2.0	1.2	2.1	6.9	0.1452	53	108

P-DA frame nomenclature indicates an IE3 efficiency motor

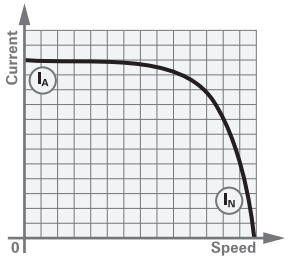
See performance data notes on page 7

Performance data notes

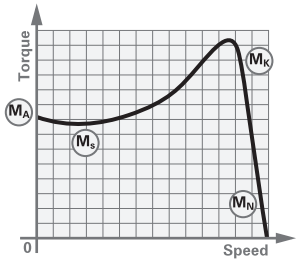
Speed / torque & speed /current curves

DOL starting

Typical speed/current curve



Typical speed/torque curve



(I_A)	Starting current
(I_N)	Full load current
(M_A)	Starting torque or locked rotor torque
(M_S)	Pull up torque or run up torque
(M_K)	Pull out torque or breakdown torque
(M_N)	Full load torque

During the run up period in Star, there must be an adequate excess of motor torque over the load torque. The change to Delta must not occur until the motor is near the operating speed. Refer to Brook Crompton for running up against a load in excess of 70% full load during Star Delta starting.

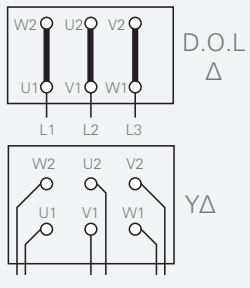
Performance figures are subject to IEC tolerances. Performance figures are based on a 400 volt winding.

$$J\ (WK^2 \text{ or } WR^2) = \frac{GD^2}{4}$$

$$J \text{ in lb ft}^2 = \frac{kgm^2}{0.042}$$

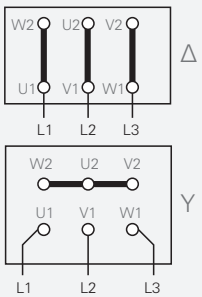
Connection diagrams

Star Delta

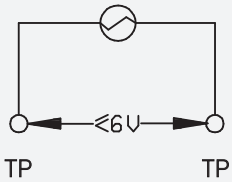


Motors => 4kW

Dual voltage



Thermistors - (PTC)



Connect to thermistor control unit.

Performance data

8

3000 min^{-1} (2 pole), cast iron construction

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia WK^2	Mean Sound pressure level @ 1m on no load	Weight
P_N				I_N												
kW	hp	n min^{-1}	Type	230 V A	400 V A	690 V A	η 1.0 P_N	Cos Ø 1.0 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75	1.0	2865	P-DF80MA	2.85	1.64	-	80.7	0.82	2.50	2.3	2.3	2.3	7.0	0.00149	67	16
1.1	1.5	2885	P-DF80MB	4.02	2.31	-	82.7	0.83	3.64	2.2	2.2	2.3	7.3	0.00169	67	17
1.5	2.0	2885	P-DF90SA	5.32	3.06	-	84.2	0.84	4.97	2.2	2.2	2.3	7.6	0.00221	78	21
2.2	3.0	2895	P-DF90LA	7.56	4.35	-	85.9	0.85	7.26	2.2	2.2	2.3	7.6	0.00299	78	27
3.0	4.0	2915	P-DF100LA	9.94	5.71	-	87.1	0.87	9.83	2.2	2.2	2.3	7.8	0.00574	74	35
4.0	5.5	2895	P-DF112MA	-	7.45	4.32	88.1	0.88	13.2	2.2	2.2	2.3	8.3	0.00759	75	42
5.5	7.5	2925	P-DF132SA	-	10.1	5.86	89.2	0.88	18.0	2.0	2.0	2.3	8.3	0.01646	77	58
7.5	10	2925	P-DF132SB	-	13.7	7.92	90.1	0.88	24.5	2.0	2.0	2.3	7.9	0.02058	77	65
11.0	15	2940	P-DF160MA	-	19.6	11.3	91.2	0.89	35.7	2.0	2.0	2.3	8.1	0.06488	79	145
15.0	20	2940	P-DF160MB	-	26.5	15.3	91.9	0.89	48.7	2.0	2.0	2.3	8.1	0.07879	79	160
18.5	25	2940	P-DF160LA	-	32.5	18.8	92.4	0.89	60.1	2.0	2.0	2.3	8.2	0.09733	79	175
22.0	30	2950	P-DF180MA	-	38.5	22.3	92.7	0.89	71.2	2.0	2.0	2.3	8.2	0.14884	80	215
30.0	40	2960	P-DF200LA	-	52.1	30.2	93.3	0.89	96.8	2.0	2.0	2.3	7.6	0.22689	82	290
37.0	50	2960	P-DF200LB	-	64.0	37.1	93.7	0.89	119.4	2.0	2.0	2.3	7.6	0.28695	82	310
45.0	60	2970	PU-DF225M	-	76.8	44.5	94.0	0.90	144.7	2.0	2.0	2.3	7.7	0.35588	84	390
55.0	75	2970	PU-DF250M	-	93.5	54.2	94.3	0.90	176.9	2.0	2.0	2.3	7.7	0.54542	80	520
75.0	100	2980	PU-DF280S	-	127	73.6	94.7	0.90	240.4	1.8	1.8	2.3	7.1	0.80462	81	680
90.0	125	2980	PU-DF280MA	-	152	88.1	95.0	0.90	288.4	1.8	1.8	2.3	7.1	1.00577	81	725
110.0	150	2980	PU-DF315SA	-	185	107	95.2	0.90	352.5	1.8	1.8	2.3	7.1	1.45721	84	940
132.0	175	2980	PU-DF315MA	-	222	129	95.4	0.90	423	1.8	1.8	2.3	7.1	1.60590	84	1050
160.0	215	2980	PU-DF315LA	-	265	154	95.6	0.91	512.8	1.8	1.8	2.3	7.2	2.02225	84	1130
200.0	270	2980	PU-DF315LB	-	331	192	95.8	0.91	641	1.8	1.8	2.2	7.2	2.26016	84	1195
250.0	335	2980	PU-DF355M	-	414	240	95.8	0.91	801.2	1.6	1.6	2.2	7.2	5.53130	85	2480
315.0	430	2980	PU-DF355LA	-	522	302	95.8	0.91	1009	1.6	1.6	2.2	7.2	6.77585	85	2560
355.0	475	2980	PU-DF355LBX †	-	588	341	95.8	0.91	1138	1.6	1.6	2.2	7.2	6.77585	85	2580
375.0	504	2980	PU-DF355LCX †	-	621	360	95.8	0.91	1202	1.6	1.6	2.2	7.2	8.02039	85	2630

P/PU-DF frame nomenclature indicates an IE3 efficiency motor

† See dimension pages 18 & 19

See performance data notes on page 11

Performance data

1500 min^{-1} (4 pole), cast iron construction

Rated power P_N kW	Rated power P_N hp	Full load speed in revolutions per minute n min^{-1}	Frame reference and size Type	Full load current at rated voltage I_N 230 V A	I_N 400 V A	I_N 690 V A	Efficiency η 1.0 P_N	Power factor Cos Ø 1.0 P_N	Full load torque M_N Nm	Direct on line starting torque ratio $\frac{M_A}{M_N}$	Direct on line pull up torque $\frac{M_S}{M_N}$	Direct on line pull out torque $\frac{M_K}{M_N}$	Direct on line starting current ratio $\frac{I_A}{I_N}$	Rotor inertia WK^2 J kgm^2	Mean Sound pressure level @ 1m on no load L_{PA} dB(A)	Weight kg
0.75	1.0	1425	P-DF80MB	3.04	1.75	-	82.5	0.75	5.0	2.3	2.3	2.3	6.6	0.00369	58	18
1.1	1.5	1420	P-DF90SA	4.32	2.48	-	84.1	0.76	7.4	2.3	2.3	2.3	6.8	0.00373	66	32
1.5	2.0	1420	P-DF90LA	5.73	3.30	-	85.3	0.77	10.1	2.3	2.3	2.3	7.0	0.00491	66	38
2.2	3.0	1450	P-DF100LA	7.86	4.52	-	86.7	0.81	14.5	2.3	2.3	2.3	7.6	0.00961	62	42
3.0	4.0	1450	P-DF100LB	10.5	6.02	-	87.7	0.82	19.8	2.3	2.3	2.3	7.6	0.01327	62	50
4.0	5.5	1450	P-DF112MA	-	7.95	4.61	88.6	0.82	26.3	2.2	2.2	2.3	7.8	0.01841	64	55
5.5	7.5	1445	P-DF132SA	-	10.7	6.19	89.6	0.83	36.3	2.0	2.0	2.3	7.9	0.03665	67	68
7.5	10	1460	P-DF132MA	-	14.3	8.26	90.4	0.84	49.1	2.0	2.0	2.3	7.5	0.05193	67	82
11.0	15	1470	P-DF160MA	-	20.4	11.8	91.4	0.85	71.5	2.2	2.2	2.2	7.7	0.12658	69	150
15.0	20	1470	P-DF160LA	-	27.3	15.8	92.1	0.86	97.4	2.2	2.2	2.3	7.8	0.17405	69	180
18.5	25	1475	P-DF180MA	-	33.5	19.4	92.6	0.86	120	2.0	2.0	2.3	7.8	0.25827	72	225
22.0	30	1475	P-DF180LA	-	39.7	23.0	93.0	0.86	142	2.0	2.0	2.3	7.8	0.29431	72	240
30.0	40	1475	P-DF200L	-	53.8	31.2	93.6	0.86	194	2.0	2.0	2.3	7.3	0.45089	75	320
37.0	50	1480	P-DF255S	-	66.1	38.3	93.9	0.86	239	2.0	2.0	2.3	7.4	0.70323	76	390
45.0	60	1480	PU-DF225M	-	80.2	46.5	94.2	0.86	290.4	2.0	2.0	2.3	7.4	0.82329	76	410
55.0	75	1480	PU-DF250MA	-	97.6	56.6	94.6	0.86	355	2.2	2.2	2.3	7.4	1.02732	73	575
75.0	100	1485	PU-DF280S	-	129	75.1	95.0	0.88	482	2.0	2.0	2.3	6.9	2.13025	75	725
90.0	125	1485	PU-DF280MA	-	155	89.9	95.2	0.88	579	2.0	2.0	2.3	6.9	2.57405	75	765
110.0	150	1480	PU-DF315S	-	187	108	95.4	0.89	710	2.0	2.0	2.2	7.0	3.71258	80	1060
132.0	175	1480	PU-DF315M	-	224	130	95.6	0.89	852	2.0	2.0	22	7.0	4.27509	80	1185
160.0	215	1480	PU-DF315LA	-	271	157	95.8	0.89	1032	2.0	2.0	2.2	7.1	5.17511	80	1270
200.0	270	1480	PU-DF315LB	-	334	194	96.0	0.90	1291	2.0	2.0	2.2	7.1	5.85013	80	1400
250.0	335	1490	PU-DF355M	-	418	242	96.0	0.90	1602	2.0	2.0	2.2	7.1	8.78795	80	2300
315.0	430	1490	PU-DF355LA	-	526	305	96.0	0.90	2019	2.0	2.0	2.2	7.1	12.1966	80	2340
355.0	475	1490	PU-DF355LBX †	-	607	352	96.0	0.88	2275	1.7	1.7	2.2	7.0	13.6602	80	2390
375.0	504	1490	PU-DF355LCX †	-	641	371	96.0	0.88	2404	1.7	1.7	2.2	7.0	14.1481	80	2480

P/PU-DF frame nomenclature indicates an IE3 efficiency motor

† See dimension pages 18 & 19

See performance data notes on page 11

Performance data

10

1000 min^{-1} (6 pole), cast iron construction

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia WK^2	Mean Sound pressure level @ 1m on no load	Weight
P_N				I_N												
kW	hp	n min^{-1}	Type	230 V A	400 V A	690 V A	η 1.0 P_N	Cos Ø 1.0 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm^2	$\frac{L_{PA}}{}$ dB(A)	kg
0.75	1.0	935	P-DF90SA	3.36	1.93	-	78.9	0.71	7.66	2.0	2.0	2.1	6.0	0.00513	63	30
1.1	1.5	935	P-DF90LA	4.67	2.69	-	81.0	0.73	11.2	2.0	2.0	2.1	6.0	0.00702	63	37
1.5	2.0	950	P-DF100LA	6.25	3.60	-	82.5	0.73	15.1	2.0	2.0	2.1	6.5	0.01258	56	42
2.2	3.0	940	P-DF112MA	8.85	5.09	-	84.3	0.74	22.4	2.0	2.0	2.1	6.6	0.02409	62	47
3.0	4.0	960	P-DF132SA	11.9	6.84	-	85.6	0.74	29.8	2.0	2.0	2.1	6.8	0.03931	65	60
4.0	5.5	960	P-DF132MA	-	8.99	5.21	86.8	0.74	39.8	2.0	2.0	2.1	6.8	0.05023	65	73
5.5	7.5	960	P-DF132MB	-	12.0	6.97	88.0	0.75	54.7	2.0	2.0	2.1	7.0	0.06989	65	83
7.5	10	975	P-DF160MA	-	15.4	8.92	89.1	0.79	73.5	2.0	2.0	2.1	7.0	0.13303	65	140
11.0	15	975	P-DF160LA	-	22.0	12.7	90.3	0.80	107.7	2.0	2.0	2.1	7.2	0.17244	65	160
15.0	20	975	P-DF180LA	-	29.3	17.0	91.2	0.81	146.9	2.0	2.0	2.1	7.3	0.35680	69	220
18.5	25	975	P-DF200LA	-	36.0	20.8	91.7	0.81	181.2	2.0	2.0	2.1	7.3	0.50533	72	260
22.0	30	975	P-DF200LB	-	42.5	24.6	92.2	0.81	215.5	2.0	2.0	2.1	7.4	0.58727	72	290
30.0	40	980	PU-DF225M	-	56.2	32.6	92.9	0.83	292.3	2.0	2.0	2.1	6.9	0.90683	72	360
37.0	50	980	PU-DF250M	-	68.1	39.5	93.3	0.84	360.6	2.0	2.0	2.1	7.1	1.41148	70	470
45.0	60	980	PU-DF280S	-	81.6	47.3	93.7	0.85	438.5	2.0	2.0	2.0	7.3	2.25042	72	600
55.0	75	980	PU-DF280MA	-	98.1	56.9	94.1	0.86	536	2.0	2.0	2.0	7.3	2.62549	72	645
75.0	100	990	PU-DF315SA	-	136	79.0	94.6	0.84	723	2.0	2.0	2.0	6.6	3.72123	75	940
90.0	125	990	PU-DF315MA	-	161	93.4	94.9	0.85	868	2.0	2.0	2.0	6.7	4.31663	75	1040
110.0	150	990	PU-DF315LA	-	196	114	95.1	0.85	1061	2.0	2.0	2.0	6.7	5.20972	75	1110
132.0	175	990	PU-DF315LB	-	232	135	95.4	0.86	1273	2.0	2.0	2.0	6.8	6.17724	75	1115
160.0	215	990	PU-DF355MA	-	281	163	95.6	0.86	1543	1.8	1.8	2.0	6.8	11.0727	79	2450
200.0	270	990	PU-DF355MB	-	346	201	95.8	0.87	1929	1.8	1.8	2.0	6.8	13.4798	79	2500
250.0	335	990	PU-DF355LAX †	-	433	251	95.8	0.87	2412	1.8	1.8	2.0	6.8	18.8233	79	2590
315.0	420	990	PU-DF355LBX †	-	552	320	95.8	0.86	3039	1.8	1.8	2.0	6.8	20.8401	79	2655
355.0	480	990	PU-DF355LCX †	-	622	361	95.8	0.86	3424	1.8	1.8	2.0	6.8	21.8485	79	2680
375.0	504	990	PU-DF355LDX †	-	657	381	95.8	0.86	3617	1.8	1.8	2.0	6.8	22.9548	80	2720

P/PU-DF frame nomenclature indicates an IE3 efficiency motor

† See dimension pages 18 & 19

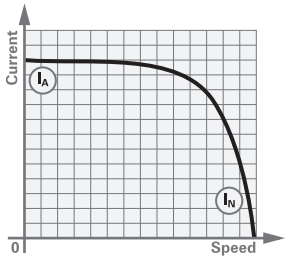
See performance data notes on page 11

Performance data notes

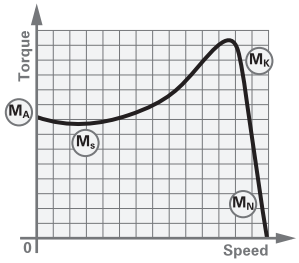
Speed / torque & speed /current curves

DOL starting

Typical speed/current curve



Typical speed/torque curve



(I_A)	Starting current
(I_N)	Full load current
(M_A)	Starting torque or locked rotor torque
(M_S)	Pull up torque or run up torque
(M_K)	Pull out torque or breakdown torque
(M_N)	Full load torque

During the run up period in Star, there must be an adequate excess of motor torque over the load torque. The change to Delta must not occur until the motor is near the operating speed. Refer to Brook Crompton for running up against a load in excess of 70% full load during Star Delta starting.

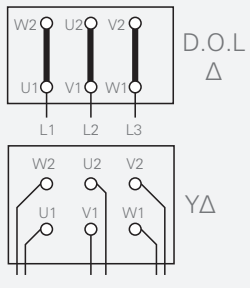
Performance figures are subject to IEC tolerances. Performance figures are based on a 400 volt winding.

$$J\ (WK^2 \text{ or } WR^2) = \frac{GD^2}{4}$$

$$J \text{ in lb ft}^2 = \frac{kgm^2}{0.042}$$

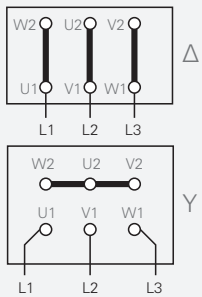
Connection diagrams

Star Delta

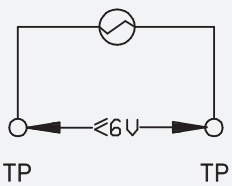


Motors => 4kW

Dual voltage

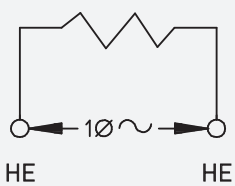


Thermistors - (PTC)



Connect to thermistor control unit.

Heaters



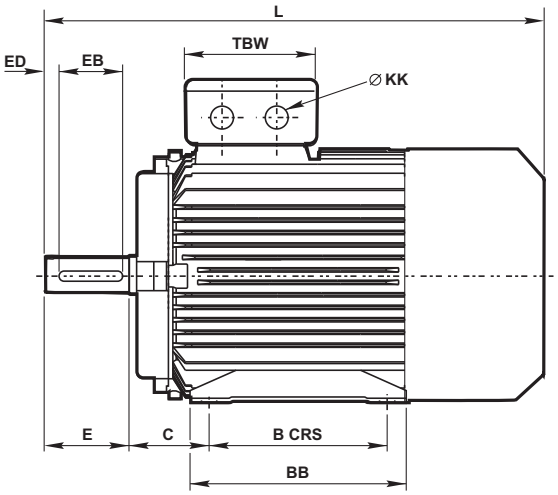
Connect to single phase supply

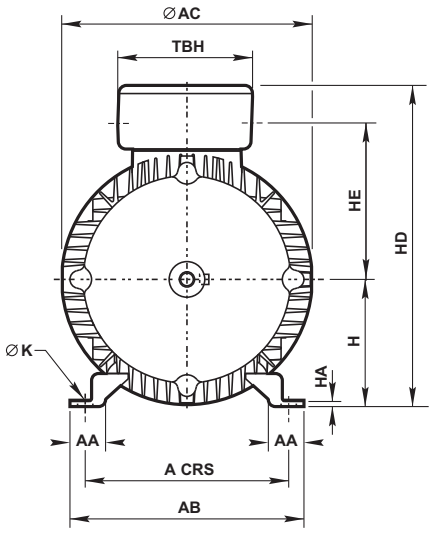
Dimensions

Foot, flange and face mounting - frame sizes 80 to 160 aluminium (P-DA)

IM B3
IM 1001

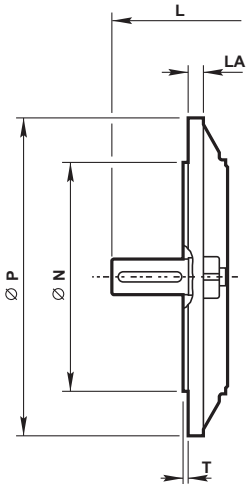
Mounting options

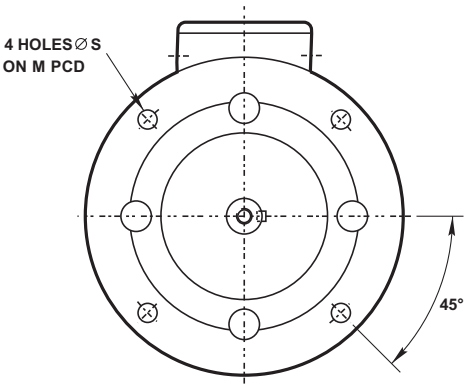




IM B5 / IM B35 / IM V1
IM 3001/IM 2001/IM3011

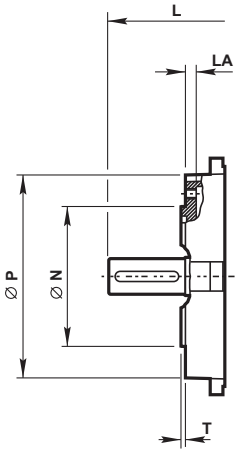
Mounting options

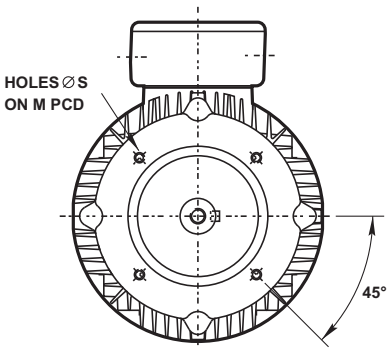




IM B14/IM B34
IM 3601/IM 2101

Mounting options





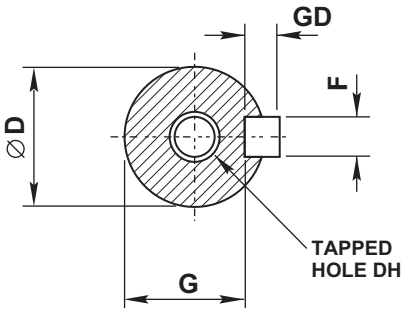
Dimensions

Foot, flange and face mounting - frame sizes 80 to 160 aluminium (P-DA)

General **Type** Aluminium	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HE	Terminal box TBW	TBH	KK
P-DA80M	125	100	50	80	10	300	35	156	175	132	8	220	195	100	100	1 x CM20
P-DA90S	140	100	56	90	10	350	37	180	195	175	11	255	230	105	105	1 x CM25
P-DA90L	140	125	56	90	10	380	37	180	195	175	11	255	230	105	105	1 x CM25
P-DA100L	160	140	63	100	12	430	40	190	215	176	11.5	270	245	105	105	1 x CM25
P-DA112M	190	140	70	112	12	450	41	230	240	180	12	300	265	114	121	2 x CM25
P-DA132S	216	140	89	132	12	470	51	270	275	180	12	345	310	114	121	2 x CM25
P-DA132M	216	178	89	132	12	510	51	270	275	216	12	345	310	114	121	2 x CM25
P-DA160M	254	210	108	160	14.5	620	55	305	330	260	18.5	420	380	160	170	2 x CM32
P-DA160L	254	254	108	160	14.5	665	55	305	330	305	18.5	420	380	160	170	2 x CM32

Flange & Face **Type** Aluminium	IM B5 / IM V1 mounting M	N	P	S	T	LA	IM B14 mounting M	N	P	S	T	LA
P-DA80M	165	130	200	12	3.5	12	100	80	120	M6	3.0	-
P-DA90S	165	130	200	12	3.5	11	115	95	140	M8	3.0	14
P-DA90L	165	130	200	12	3.5	11	115	95	140	M8	3.0	14
P-DA100L	215	180	250	14.5	4.0	13	130	110	160	M8	3.5	15
P-DA112M	215	180	250	14.5	4.0	14	130	110	160	M8	3.5	15
P-DA132S	265	230	300	14.5	4.0	14	165	130	200	M10	4.0	17
P-DA132M	265	230	300	14.5	4.0	14	165	130	200	M10	4.0	17
P-DA160M	300	250	350	18.5	5.0	15	-	-	-	-	-	-
P-DA160L	300	250	350	18.5	5.0	15	-	-	-	-	-	-

Shaft **Type** Aluminium	D	E	F	G	GD	EB	ED	DH
P-DA80	19	40	6	15.5	6	30	5	M6
P-DA90	24	50	8	20	7	40	5	M8
P-DA100	28	60	8	24	7	45	7.5	M10
P-DA112M	28	60	8	24	7	45	7.5	M10
P-DA132	38	80	10	33	8	60	10	M12
P-DA160	42	110	12	37	8	90	10	M16



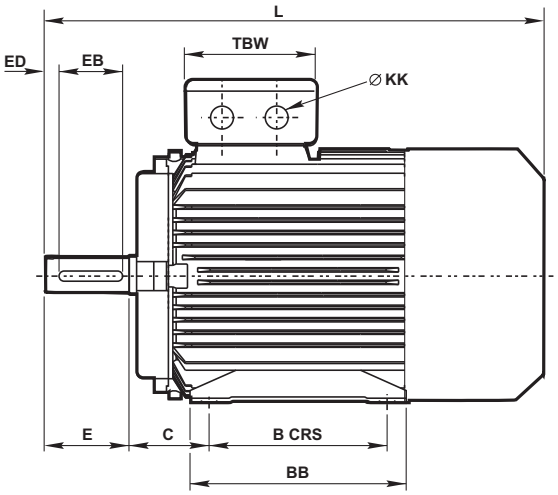
For tolerance details and notes - see page 20

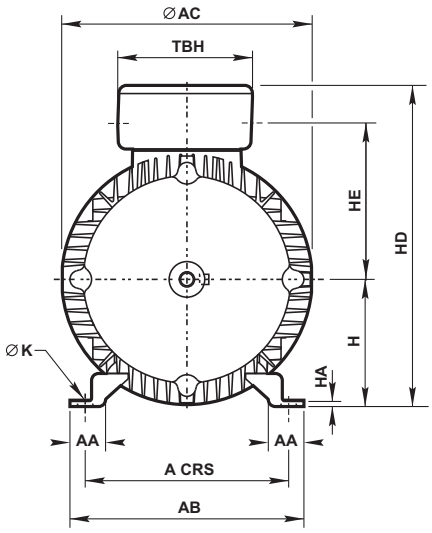
Dimensions

Foot, flange and face mounting - frame sizes 80 to 160 cast iron (P-DF)

IM B3
IM 1001

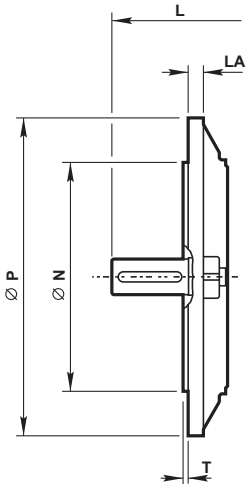
Mounting options

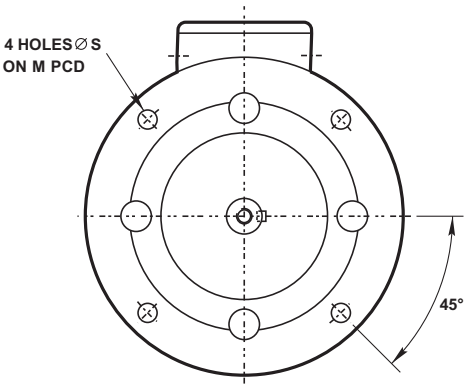




IM B5 / IM B35 / IM V1
IM 3001/IM 2001/IM3011

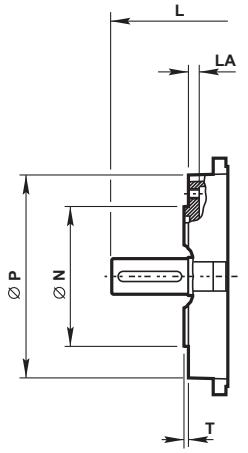
Mounting options

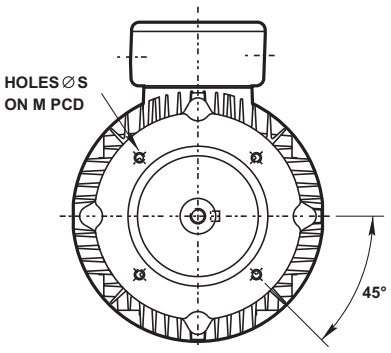




IM B14 / IM B34
IM 3601 / IM 2101

Mounting options





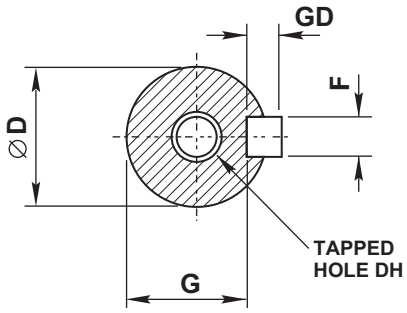
Dimensions

Foot, flange and face mounting - frame sizes 80 to 160 cast iron (P-DF)

General Type Cast iron	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HE	Terminal box TBW	 TBH	 KK
P-DF80M	125	100	50	80	10	340	34	160	162	160	10	230	110	92	92	1 x M25
P-DF90S	140	100	56	90	10	355	36	176	168	165	12	250	125	100	100	1 x M25
P-DF90L	140	125	56	90	10	385	36	176	168	195	12	250	125	100	100	1 x M25
P-DF100L	160	140	63	100	12	435	40	200	200	200	14	280	140	100	100	1 x M32
P-DF112M	190	140	70	112	12	440	45	226	216	200	15	302	150	108	116	2 x M32
P-DF132S	216	140	89	132	12	465	55	262	254	186	18	345	180	108	116	2 x M32
P-DF132M	216	178	89	132	12	505	55	262	254	224	18	345	180	108	116	2 x M32
P-DF160M	254	210	108	160	14.5	690	65	314	336	320	20	450	220	162	218	2 x M40
P-DF160L	254	254	108	160	14.5	735	65	314	336	365	20	450	220	162	218	2 x M40

Flange & Face Type Cast iron	IM B5 / IM V1 mounting M	 N	 P	 S	 T	 LA	IM B14 mounting M	 N	 P	 S	 T	 LA
P-DF80M	165	130	200	12	3.5	12	100	80	120	M6	3.0	-
P-DF90S	165	130	200	12	3.5	12	115	95	140	M8	3.0	14
P-DF90L	165	130	200	12	3.5	12	115	95	140	M8	3.0	14
P-DF100L	215	180	250	14.5	4.0	13	130	110	160	M8	3.5	15
P-DF112M	215	180	250	14.5	4.0	14	130	110	160	M8	3.5	15
P-DF132S	265	230	300	14.5	4.0	14	-	-	-	-	-	-
P-DF132M	265	230	300	14.5	4.0	14	-	-	-	-	-	-
P-DF160M	300	250	350	18.5	5.0	15	-	-	-	-	-	-
P-DF160L	300	250	350	18.5	5.0	15	-	-	-	-	-	-

Shaft Type Cast iron	D	E	F	G	GD	EB	ED	DH
P-DF80	19	40	6	15.5	6	28	6	M6
P-DF90	24	50	8	20	7	40	5	M8
P-DF100	28	60	8	24	7	50	5	M10
P-DF112M	28	60	8	24	7	50	5	M10
P-DF132	38	80	10	33	8	63	8	M12
P-DF160	42	110	12	37	8	90	9	M16



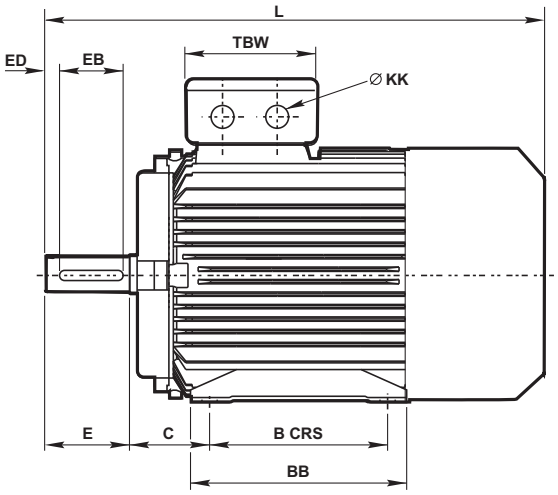
For tolerance details and notes - see page 20

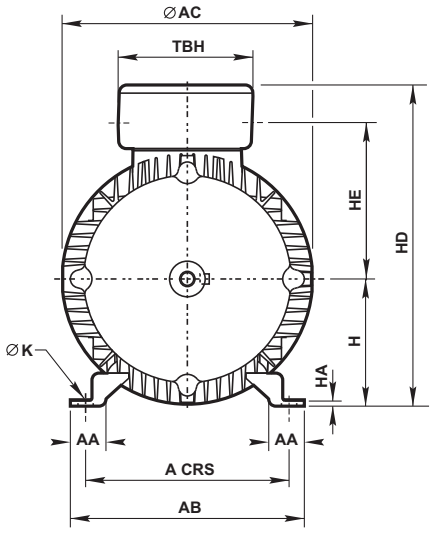
Dimensions

Foot and flange mounting - frame sizes 180 to 355 cast iron (P/PU-DF)

IM B3
IM 1001

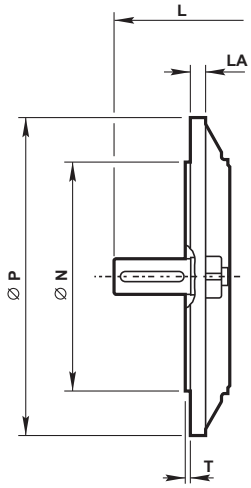
Mounting options

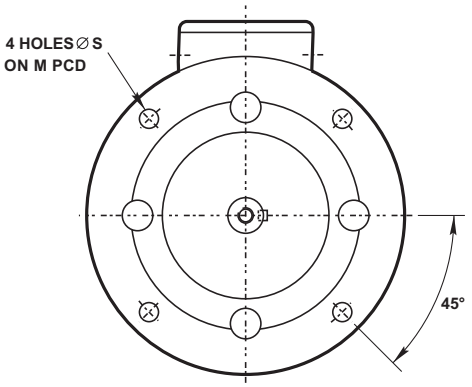




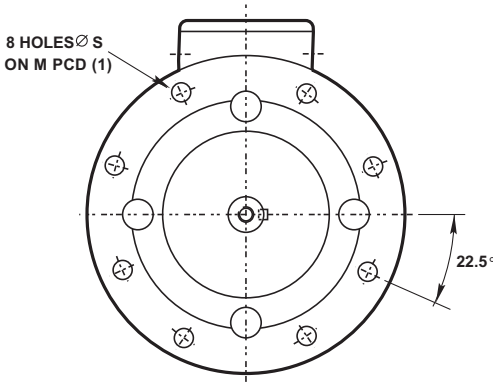
IM B5 / IM B35 / IM V1
IM 3001/IM 2001/IM 3011

Mounting options





Up to 200 frame



8 holes at 22.5° for flanges to suit 225 frames and above to European specification

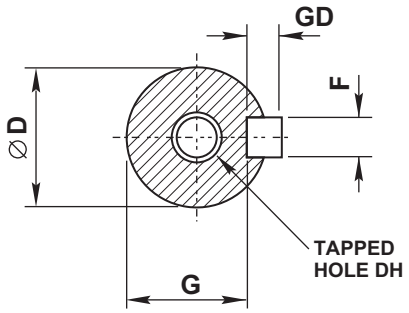
Dimensions

Foot and flange mounting - frame sizes 180 to 355 cast iron (P/PU-DF)

General Type Cast iron	A	B	C	H	K	L 4 Pole +	L 2 Pole	AA	AB	AC	BB	HA	HD	HE	Terminal box TBW	 TBH	KK
P-DF180M	279	241	121	180	14.5	755	755	70	349	362	341	22	490	240	162	218	2 x M40
P-DF180L	279	279	121	180	14.5	785	785	70	349	362	371	22	490	240	162	218	2 x M40
P-DF200L	318	305	133	200	18.5	850	850	70	388	421	434	25	530	250	192	260	2 x M50
PU-DF225S	356	286	149	225	18.5	880	-	75	431	463	373	28	575	275	192	260	2 x M50
PU-DF225M	356	311	149	225	18.5	902	875	75	431	463	393	28	575	275	192	260	2 x M50
PU-DF250M	406	349	168	250	24	1020	1020	80	484	505	450	30	645	315	230	305	2 x M63
PU-DF280S	457	368	190	280	24	1050	1050	85	542	563	516	35	706	340	230	305	2 x M63
PU-DF280M	457	419	190	280	24	1110	1110	85	542	563	536	35	706	340	230	305	2 x M63
PU-DF315S	508	406	216	315	28	1295	1255	120	628	620	630	45	875	440	280	400	2 x M63
PU-DF315M	508	457	216	315	28	1485	1445	120	628	620	680	45	875	440	280	400	2 x M63
PU-DF315L	508	508	216	315	28	1485	1445	120	628	620	680	45	875	440	280	400	2 x M63
PU-DF355M	610	560	254	355	28	1685	1615	120	730	710	750	52	1010	545	330	215	2 x M63
PU-DF355L	610	630	254	355	28	1685	1615	120	730	710	750	52	1010	545	330	215	2 x M63

Flange Type Cast iron	IM B5 / IM V1, IM B35 mounting M	N	P	S	T	LA
P-DF180M/L	300	250	350	18.5	5	15
P-DF200L	350	300	400	18.5	5	17
PU-DF225S/M	400	350	450	18.5	5	20
PU-DF250	500	450	550	18.5	5	22
PU-DF280	500	450	550	18.5	5	22
PU-DF315S/M/L †	600	550	660	24	6	25
PU-DF355M/L †	740	680	800	24	6	30

† Available as B35 or V1 mounting only. B5 not suitable



Shaft Type Cast iron	4 pole + D	E	F	G	GD	EB	ED	DH	2 pole D	E	F	G	GD	EB	ED	DH
P-DF180M/L	48	110	14	42.5	9	90	9	M16	48	110	14	42.5	9	90	9	M16
PU-DF200L	55	110	16	49	10	90	9	M20	55	110	16	49	10	90	9	M20
PU-DF225S	60	140	18	53	11	110	14	M20	-	-	-	-	-	-	-	-
PU-DF225M	60	140	18	53	11	110	14	M20	55	110	16	49	10	90	9	M20
PU-DF250M	65	140	18	58	11	110	14	M20	60	140	18	53	11	110	14	M20
PU-DF280S/M	75	140	20	67.5	12	110	14	M20	65	140	18	58	11	110	14	M20
PU-DF315S/M/L	80	170	22	71	14	140	14	M20	65	140	18	58	11	110	14	M20
PU-DF355M/L	100	210	28	90	16	200	5	M24	75	140	20	67.5	12	130	5	M20

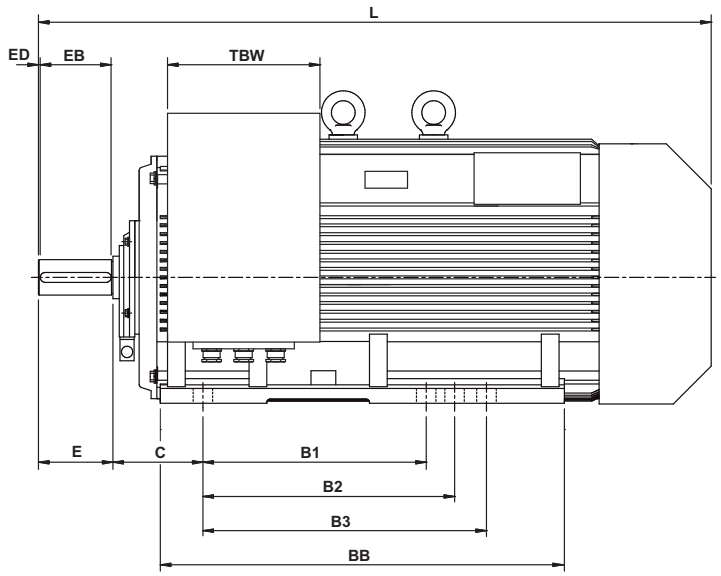
For tolerance details and notes - see page 20

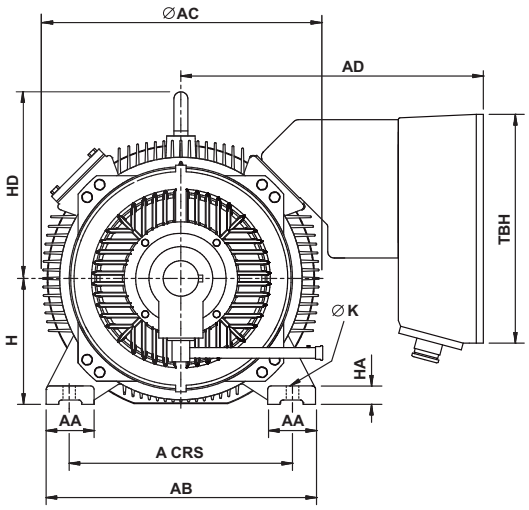
Dimensions

Foot mounted - frame size 355X cast iron (PU-DF)

IM B3
IM 1001

Mounting options

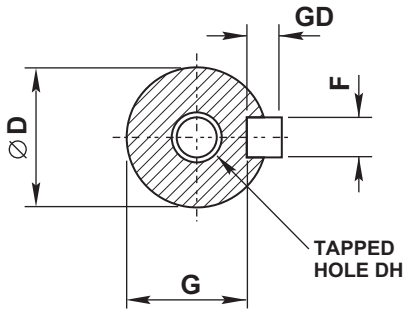




Dimensions

Foot mounted - frame size 355X cast iron (PU-DF)

General Type Cast iron	A	B1	B2	B3	C	H	K	L 4 Pole +	L 2 Pole	AA	AB	AC	BB	HA	Terminal box HD	AD	TBW	TBH	KK
PU-DF355MX / LX	630	630	710	800	254	355	35	1905	1865	135	760	754	1140	55	535	860	430	640	2 x M63



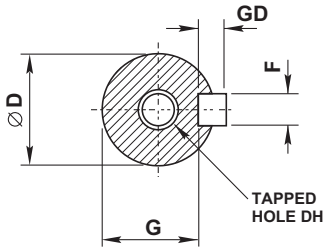
Shaft Type Cast iron	4 pole + D	E	F	G	GD	EB	ED	DH	2 pole D	E	F	G	GD	EB	ED	DH
PU-DF355MX / LX	100	210	28	90	16	200	5	M24	75	140	20	67.5	12	130	5	M20

For tolerance details and notes - see page 20

Dimension pages notes & mounting codes

Page notes

Shaft		
Dim D	Tol	Limits
11 to 14	j6	+0.008 –0.003
19 to 28	j6	+0.009 –0.004
38 to 48	k6	+0.018 +0.002
55 to 80	m6	+0.030 +0.011
85 to 110	m6	+0.035 +0.013



All dimensions in millimetres

Cable entry can be arranged in any one of four positions at 90° intervals

Dimensions should not be used for installation purposes unless specially endorsed

B5 mounted motors have suffix '-D' in the frame reference, eg P-DA132MA-D and B3/B5 mounted motors have suffix '-H' in the frame reference, eg P-DA132MA-H

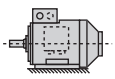
B14 mounted motors have suffix 'C' in the frame reference, eg P-DA132MA-C and B3/B14 mounted motors have suffix '-H' in the frame reference, eg P-DA132MA-H

Flange		
	IEC 60072	
Dim N	Tol	Limits
110	j6	+0.013 –0.009
130	j6	+0.014 –0.011
230 to 250	j6	+0.016 –0.013
300	j6	+0.016 -0.016
350	j6	+0.018 -0.018
450	j6	+0.020 -0.020
550	j6	+0.022 -0.022
680	js6	+0.025 -0.025

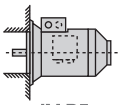
Face		
	IEC 60072	
Dim N	Tol	Limits
70 and 80	j6	+0.012 –0.007
95 and 110	j6	+0.013 –0.009
130	j6	+0.014 –0.011
230	j6	+0.016 –0.013

Mounting codes

Horizontal shaft:



IM B3
IM 1001
foot mounted

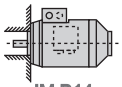


IM B5
IM 3001
flange at DE
no feet

IM B6
IM 1051
foot wall mounted with feet on left-hand side when viewed from DE

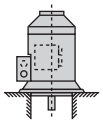
IM B7
IM 1061
foot wall mounted with feet on right-hand side when viewed from DE

IM B8
IM 1071
ceiling mounted with feet above motor

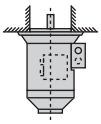


IM B14
IM 3601
face at DE
no feet

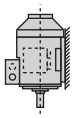
Vertical shaft:



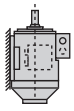
IM V1
IM 3011
flange at DE
shaft down
no feet



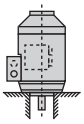
IM V3
IM 3031
flange at DE
shaft up
no feet



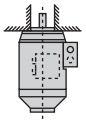
IM V5
IM 1011
vertical foot wall mounted
shaft down



IM V6
IM 1031
vertical foot wall mounted
shaft up



IM V18
IM 3611
face at DE
shaft down
no feet



IM V19
IM 3631
face at DE
shaft up
no feet

Technical information

Mechanical

Bearing arrangements

Bearing references and oilseals for horizontally mounted motors only

Type			Bearings[1]		Oilseals[2]	
Aluminium	Cast iron	Poles	Drive end	Non-drive end	Drive end	Non-drive end
P-DA80M	-	All	6204ZZ	6204ZZ	20 x 35 x 5	20 x 35 x 5
-	P-DF80M	All	6204ZZ	6204ZZ	20 x 35 x 7	20 x 35 x 7
P-DA90S/L	-	All	6205ZZ	6203ZZ	25 x 40 x 7	25 x 40 x 7
-	P-DF90S/L	All	6205ZZ	6205ZZ	25 x 40 x 5	25 x 40 x 5
P-DA100L		All	6206ZZ	6206ZZ	30 x 47 x 7	30 x 47 x 7
-	P-DF100L	All	6206ZZ	6206ZZ	30 x 45 x 7	30 x 45 x 7
P-DA112M	-	All	6206ZZ	6206ZZ	30 x 45 x 7	30 x 45 x 7
-	P-DF112M	All	6306ZZ	6306ZZ	30 x 47 x 7	30 x 47 x 7
P-DA132S/M	-	All	6208ZZ	6208ZZ	40 x 62 x 8	40 x 62 x 8
-	P-DF132S/M	All	6308ZZ	6308ZZ	40 x 62 x 8	40 x 62 x 8
P-DA160M/L	-	2	6209ZZ	6209ZZ	45 x 62 x 10	45 x 62 x 10
P-DA160M/L	-	4 up	6309ZZ	6209ZZ	45 x 62 x 10	45 x 62 x 10
_	P-DF160M/L	All	6309ZZ	6309ZZ	45 x 62 x 8	45 x 62 x 8
_	P-DF180M/L	All	6311ZZ	6311ZZ	55 x 75 x 8	55 x 75 x 8
_	P-DF200L	All	6312ZZ	6312ZZ	60 x 80 x 8	60 x 80 x 8
_	PU-DF225S/M	All	6314ZZ	6314ZZ	70 x 90 x 10	70 x 90 x 10
_	PU-DF250M	2	6314	6314	70 x 90 x 10	70 x 90 x 10
_	PU-DF250M	4 up	6315	6314	75 x 100 x 10	70 x 90 x 10
_	PU-DF280S/M	2	6315	6315	75 x 100 x 10	75 x 100 x 10
_	PU-DF280S/M	4 up	6317	6317	85 x 110 x 12	85 x 110 x 12
_	PU-DF315S/M/L	2	6317	6317	85 x 110 x 12	85 x 110 x 12
_	PU-DF315S/M/L	4 up	6319	6319	95 x 120 x 12	95 x 120 x 12
_	PU-DF355M/L	2	6319	6319	95 x 120 x 12	95 x 120 x 12
_	PU-DF355M/L	4 up	6322	6322	110 x 140 x 12	110 x 140 x 12
_	PU-DF355MX / LX	2	6319	6319	95 x 120 x 12	95 x 120 x 12
_	PU-DF355MX / LX	4 up	6324	6324	120 x 140 x 12	120 x 140 x 12

[1] Frame sizes 80-225 have sealed for life bearings with C3 clearances. Frame sizes 250-355 bearings have regreasing facilities with C3 clearance.
[2] Sizes given are in mm and represent bore x outside diameter x width.
The seal material used on all frame sizes and all polarity is nitrile rubber (NBR).

Relubrication intervals for operating temperature up to 70ºC x 10^3 hours

Type	3000 min^{-1}		1500 min^{-1}		1000 min^{-1}		750 min^{-1}	
	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
PU-DF250M	1.1	0.7	3.3	2.1	5.0	3.2	5.0	3.2
PU-DF280S	1.2	0.8	3.9	2.5	5.6	3.6	5.6	3.6
PU-DF280M	1.2	0.8	3.9	2.5	5.6	3.6	5.6	3.6
PU-DF315S	0.8	0.5	3.7	2.4	5.4	3.5	5.4	3.5
PU-DF315M	0.8	0.5	3.7	2.4	5.4	3.5	5.4	3.5
PU-DF315L	0.8	0.5	3.7	2.4	5.4	3.5	5.4	3.5
PU-DF355M	0.5	0.3	3.1	2.0	5.0	3.2	5.0	3.2
PU-DF355L	0.5	0.3	3.1	2.0	5.0	3.2	5.0	3.2
PU-DF355MX	-	-	3.3	2.1	4.0	2.6	4.0	2.6
PU-DF355LX	-	-	3.3	2.1	4.0	2.6	4.0	2.6

Sealed for life bearings are fitted with a premium quality grease to ensure exceptional reliability under a wide range of operating conditions. Under normal operating conditions, a grease life of more than 25,000 hours can be achieved.
The regreasing time should be reduced if the bearing operating temperature is in excess of 70˚C.

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Series 10

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